



# Introduction to Computer Programming Using C++ (E1COD001C)

<b>Introduction</b>	<p>This course introduces computer programming in C++. Students will learn the functional elements of a computer system, problem solving, creation of computer applications, and basic object-oriented programming concepts. Students will be able to apply these computing skills in various disciplines. This course also provides a foundation to further study in other computing topics.</p> <p>This course is co-organised with Department of Electronic Engineering, The Chinese University of Hong Kong (CUHK).</p>
<b>Programme Type / Level</b>	Coding Course (Level I) ( <a href="#">Token-required</a> )
<b>Instructor(s)</b>	Dr LAW Yat Chiu (Lecturer, Department of Computer Science and Engineering, CUHK)
<b>Pre-requisite</b>	<ul style="list-style-type: none"> <li>Basic computer skills in Windows or macOS.</li> </ul>
<b>Target Participants</b>	<ul style="list-style-type: none"> <li>S1-S3 HKAGE student members</li> <li>Class size: 30</li> </ul> <p>This programme is the same as Introductory Course in Computer Programming: Introduction to Computer Programming Using C++ (TECS1441) in 2018/19 school year.</p>
<b>Medium of Instruction</b>	English with English Handouts
<b>Certificate</b>	<p><b>E-Certificate</b> will be awarded to participants who have:</p> <ul style="list-style-type: none"> <li>Attended <b>AT LEAST 5</b> sessions AND</li> <li>Completed all the assessments with satisfactory performance.</li> </ul>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the programme, participants should be able to:</p> <ul style="list-style-type: none"> <li>write, understand, compile, and debug C++ programs;</li> <li>write programs using the basic programming elements such as variables, data types, selection and looping control structures, and functions;</li> <li>write applications using elementary data structures such as 1-D and 2-D arrays, etc.;</li> <li>instantiate classes and invoke methods.</li> </ul>
<b>Screening</b>	<p>Please answer the screening question in the online application form. *The screening question is designed to help the applicant understands the course level and the course content. The question must be answered by the student applicant and it can only be attempted once. The answer cannot be changed once the application is submitted. Selection is based on students' performance in answering the question. Only students who can demonstrate motivation and the knowledge of Coding in the screening question can be enrolled in the programme.</p>
<b>Application Deadline</b>	<p><b>16 Nov 2020, 12:00 n.n</b></p> <p><b>Application Result Release Date</b> <b>27 Nov 2020</b></p> <p>If student members withdraw from the programme after the Application Deadline, the token will be deducted.</p>

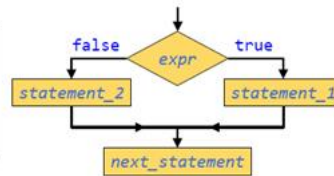
## Schedule

Session	Date	Time	Venue
1	9 Jan	10:00 a.m. – 1:00 p.m.	To be confirmed
2	16 Jan		
3	6 Feb		
4	17 Feb	2:00 p.m. – 5:00 p.m.	
5	27 Feb	10:00 a.m. – 1:00 p.m.	
6	13 Mar		
7	27 Mar		

## Sample Note

### if-else Statement: Syntax

```
if (expr)
    statement_1;
else
    statement_2;
next_statement;
```



- Allows us to conditionally perform one of two tasks

### Passing Parameter by Value

The diagram illustrates the process of passing a parameter by value. It shows two function definitions: `int main()` and `void bar(int n)`. In `main`, a variable `x` is initialized to 10. A call to `bar(x)` is shown. An arrow labeled "(Copy)" points from the value 10 in `main` to a new variable `n` in the `bar` function's scope. The `bar` function's code shows `n` being incremented to 11. The output shows `bar: 10`, `bar: 11`, and `main: 10`, demonstrating that the original value in `main` remains unchanged.

```
int main() {
    int x = 10;
    bar(x);
    cout << "main: " << x;
    return 0;
}

void bar(int n) {
    cout << "bar: " << n << endl;
    n++;
    cout << "bar: " << n << endl;
}
```

bar: 10  
bar: 11  
main: 10

- `x` and `n` have their own space in the memory
- During the function call, only the value of `x` is copied to `n`. Updating `n` does not affect `x`

## Enquiries

For enquiries, please contact Academic Programme Development Division on 3940 0101 after language selection, press "1".